 Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A location system comprising:

a mobile terminal including a plurality of location processors for performing measurement for locating the mobile terminal according to different positioning methods;

a plurality of wireless nodes for establishing a wireless link to said mobile terminal; and

a controlling node connected to said wireless nodes, the controlling node transmitting a control message to said mobile terminal in response to a location request message from a client terminal, said location request message containing requested accuracy of location information of said mobile terminal and said control message containing a copy of said requested accuracy,

said mobile terminal being responsive to said control message for selecting one of the positioning methods that satisfies the requested accuracy of the control message and operating the location processor of the selected method to produce measurement data;

wherein said mobile terminal has capability information indicating positioning methods supported by the mobile terminal and selectability of the positioning methods;

wherein said controlling node is arranged to receive the capability information from said mobile terminal.

2.   (Currently Amended) The location system of claim 1, ~~wherein said mobile terminal has capability information indicating positioning methods supported by the mobile terminal and selectability of the positioning methods,~~

wherein said controlling node is arranged to:

~~receive said capability information from said mobile terminal, and~~ transmit said control message as a first control message to said mobile terminal if the capability information indicates that said mobile terminal is capable of selecting said positioning methods,

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transmit a second control message to said mobile terminal if the capability information indicates that said mobile terminal is not capable of selecting said positioning methods, said second control message specifying one of said positioning methods supported by said mobile terminal, and

wherein said mobile terminal is responsive to said second control message for operating one of said location processors whose method is specified in the second control message to producing measurement data.

3.   (Original) The location system of claim 2, wherein said controlling node comprises a memory and is arranged to:

map the transmitted capability information to identity of said mobile terminal in said memory,

read the capability information corresponding to said mobile terminal in response to said location request message, and

transmit said first control message or said second control message depending on the read capability information.

4.   (Original) The location system of claim 2, wherein said mobile terminal is arranged to acquire assistance data from said controlling node and use the acquired assistance data to produce said measurement data.

5.   (Original) The location system of claim 4, wherein said assistance data is one of mobile-assisted OTDOA assistance data, mobile-based OTDOA assistance data, mobile-based A-GPS assistance data, and mobile-assisted A-GPS assistance data.

6.   (Original) The location system of claim 2, wherein said mobile terminal is arranged to calculate said measurement data to produce location information of the mobile terminal and transmit the location information to said controlling node.

7.   (Original) The location system of claim 2, wherein said mobile terminal is arranged to find an available positioning method if said measurement data is not successfully obtained and select one of the location processors corresponding to the available positioning method.

8.   (Original) The location system of claim 2, wherein said controlling node comprises:

a plurality of location processors of different positioning methods; and

means for selecting one of said location processors if said capability information indicates that said mobile terminal is not capable of selecting said positioning methods and specifying one of the positioning methods corresponding to the selected location processor in said second control message.

9.   (Original) The location system of claim 2, wherein said controlling node is arranged to:

determine whether a cell-identity positioning method is satisfactory for the requested accuracy,

detect identity of a cell in which the mobile terminal is located if the cell-identity positioning method is satisfactory for the requested accuracy, and

translate the cell identity to location information of said mobile terminal.

10.   (Original) The location system of claim 2, wherein said controlling node is a radio network controller of a radio access network which is connected to a core network including a location gateway and a serving node.

11.   (Original) The location system of claim 2, wherein said controlling node is a location server external to a core network including a location gateway and a serving node, said location server being connected to said base stations via a radio network controller of a radio access network to which said core network is connected.

12.   (Original) The location system of claim 11, wherein said location server is arranged to:

transmit an enquiry message to said mobile terminal in response to said location request message from said client terminal,

receive a reply message from said mobile terminal containing said capability information of the mobile terminal, and

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transmit said first or second control message to said mobile terminal depending on the capability information contained in said reply message.

13. (Original) The location system of claim 2, wherein said mobile terminal is arranged to:

determine if OTDOA positioning method is satisfactory for the requested accuracy,

if the OTDOA positioning method is satisfactory for the requested accuracy, compare a count number of base stations observable from the mobile terminal to a first predetermined number,

if said count number is greater than said first predetermined number, select said OTDOA positioning method,

if said count number is smaller than said predetermined number, compare a count number of GPS satellites observable from said mobile terminal to a second predetermined number, and

if the count number of said GPS satellites is greater than the second predetermined number, select A-GPS positioning method.

14. (Original) The location system of claim 13, wherein said mobile terminal is arranged to:

compare the count number of observable GPS satellites to said second predetermined number if the OTDOA positioning method is not satisfactory for the requested accuracy,

if the count number of said GPS satellites is greater than the second predetermined number, select A-GPS positioning method,

if the count number of said GPS satellites is smaller than the second predetermined number, compare the count number of said observable base stations to said first predetermined number,

if said count number of said observable base stations is greater than the first predetermined number, select the OTDOA positioning method, and

if said count number of said observable base stations is smaller than the first predetermined number, transmit an error-indicating report to said controlling node.

15. (Original) The location system of claim 2, wherein said location request message contains a requested waiting time, wherein said mobile terminal is arranged to:

determine if OTDOA positioning method is satisfactory for the requested accuracy,

if the OTDOA positioning method is satisfactory for the requested accuracy, compare response time of the OTDOA positioning method to the requested waiting time of said location request message,

if the response time of the OTDOA positioning method is equal to or smaller than the requested waiting time, select the OTDOA positioning method,

if the the OTDOA positioning method is not satisfactory for the requested accuracy or the response time of said OTDOA positioning method is greater than said requested waiting time, compare response time of A-GPS positioning method to the requested waiting time of said location request message, and

if the response time of the A-GPS positioning method is equal to or smaller than the requested waiting time, select the A-GPS positioning method.

16. (Original) The location system of claim 15, wherein the mobile terminal is arranged to:

compare the response time of the OTDOA positioning method to the response time of the A-GPS positioning method if the response time of the A-GPS positioning method is greater than the requested waiting time, and

if the response time of the OTDOA positioning method is greater than the response time of the A-GPS positioning method, select the OTDOA positioning method.

17. (Original) The location system of claim 2, wherein said mobile terminal includes a table for mapping a plurality of moving speeds to usable positioning methods, said mobile terminal is arranged to:

detect a moving speed of said mobile terminal,

search through said table for detecting positioning methods corresponding to the detected moving speed, and

select one of the detected positioning methods.

18.   (Original) The location system of claim 2, wherein said mobile terminal is arranged to:

detect a moving speed of said mobile terminal,

estimate a plurality of distances travelled by the mobile terminal from the detected moving speed and respective response times of said positioning methods,

compare said estimated distances to the requested distance represented by said accuracy, and

select one of said estimated distances which are equal to or smaller than the requested distance and select one of said positioning methods which corresponds to the selected distance.

19.   (Original) The location system of claim 18, wherein said mobile terminal is further arranged to:

compare, for each of said positioning methods, the estimated distance to said requested distance if none of said estimated distances is equal to or smaller than the requested distance,

select greater of the estimated distance and the requested distance as a new value of accuracy of the positioning method, and

select one of said positioning methods whose new value of accuracy is highest of all of the positioning methods.

20.   (Original) The location system of claim 13, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

21.   (Original) The location system of claim 14, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

22.   (Original) The location system of claim 15, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

23.   (Original) The location system of claim 16, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

24.   (Original) The location system of claim 17, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

25.   (Original) The location system of claim 18, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

26.   (Currently Amended) A locating method by using a mobile communication network, the network comprising a mobile terminal capable of performing measurement for locating the mobile terminal according to different positioning methods, a plurality of wireless nodes for establishing a wireless link to said mobile terminal, and a controlling node connected to said wireless nodes, the method comprising the steps of:

transmitting a control message from said controlling node to said mobile terminal in response to a location request message from a client terminal, said location request message containing requested accuracy of location information of said mobile terminal and said control message containing a copy of said requested accuracy,

selecting, at said mobile terminal, one of said positioning methods that satisfies the requested accuracy of the control message and performing measurement according to the selected method to produce measurement data;

transmitting capability information indicating positioning methods supported by the mobile terminal and selectability of the positioning methods from said mobile terminal,

receiving the capability information at said controlling node.

27.   (Currently Amended) The locating method of claim 26, ~~wherein said mobile terminal has capability information indicating positioning methods supported by the mobile terminal and selectability of the positioning methods,~~ further comprising the steps of:

~~transmitting said capability information from said mobile terminal,~~

~~receiving the capability information at said controlling node,~~

transmitting said control message as a first control message to said mobile terminal if the capability information indicates that said mobile terminal is capable of selecting positioning methods,

transmitting, from said controlling node, a second control message to said mobile terminal if the capability information indicates that said mobile terminal is not capable of

selecting positioning methods, said second control message specifying one of said positioning methods supported by said mobile terminal, and

performing, at said mobile terminal, measurement according to the positioning method which is specified in the second control message to measurement data.

28. (Original) The locating method of claim 27, wherein said controlling node comprises a memory, further comprising the steps of:

mapping, at said controlling node, the transmitted capability information to identity of said mobile terminal in said memory,

reading the capability information corresponding to identity of said mobile terminal in response to said location request message, and

transmitting said first control message or said second control message depending on the read capability information.

29. (Original) The locating method of claim 27, further comprising the steps of acquiring, at said mobile terminal, assistance data from said controlling node and using the acquired assistance data to produce said measurement data.

30. (Original) The locating method of claim 29, wherein said assistance data is one of mobile-assisted OTDOA assistance data, mobile-based OTDOA assistance data, mobile-based A-GPS assistance data, and mobile-assisted A-GPS assistance data.

31. (Original) The locating method of claim 27, further comprising the steps of calculating said measurement data to produce location information of the mobile terminal and transmitting the location information to said controlling node.

32. (Original) The locating method of claim 27, further comprising the steps of finding an available positioning method if said measurement data is not successfully obtained and selecting one of the location processors corresponding to the available positioning method.

33. (Original) The locating method of claim 27, wherein said controlling node is capable of performing different positioning methods, further comprising the steps of:

selecting one of said positioning methods if said capability information indicates that said mobile terminal is not capable of selecting positioning methods and specifying the selected method in said second control message.

34.   (Original) The locating method of claim 27, further comprising the steps of:

determining, at said controlling node, whether a cell-identity positioning method is satisfactory for the requested accuracy,

detecting identity of a cell in which the mobile terminal is located if the cell-identity positioning method is satisfactory for the requested accuracy, and

translating the cell identity to location information of said mobile terminal.

35.   (Original) The locating method of claim 27, wherein said controlling node is a radio network controller of a radio access network which is connected to a core network including a location gateway and a serving node.

36.   (Original) The locating method of claim 27, wherein said controlling node is a location server external to a core network including a location gateway and a serving node, said location server being connected to said base stations via a radio network controller of a radio access network to which said core network is connected.

37.   (Currently Amended) The locating method of claim 36 27, further comprising the steps of:

transmitting an enquiry message from said location server to said mobile terminal in response to said location request message from said client terminal,

receiving a reply message from said mobile terminal containing said capability information of the mobile terminal, and

transmitting said first or second control message to said mobile terminal depending on the capability information contained in said reply message.

38.   (Original) The locating method of claim 27, further comprising the steps of:

a)   determining, at said mobile terminal, if OTDOA positioning method is satisfactory for the requested accuracy;

b)   if the OTDOA positioning method is satisfactory for the requested accuracy, comparing a count number of base stations observable from the mobile terminal to a first predetermined number;

c)   if said count number is greater than said first predetermined number, selecting said OTDOA positioning method;

d)   if said count number is smaller than said predetermined number, comparing a count number of GPS satellites observable from said mobile terminal to a second predetermined number; and

e)   if the count number of said GPS satellites is greater than the second predetermined number, selecting A-GPS positioning method.

39.   (Original) The locating method of claim 38, further comprising the steps of:

f)   comparing the count number of observable GPS satellites to said second predetermined number if the OTDOA positioning method is not satisfactory for the requested accuracy;

g)   if the count number of said GPS satellites is greater than the second predetermined number, selecting A-GPS positioning method;

h)   if the count number of said GPS satellites is smaller than the second predetermined number, comparing the count number of said observable base stations to said first predetermined number,

i)   if said count number of said observable base stations is greater than the first predetermined number, selecting the OTDOA positioning method, and

j)   if said count number of said observable base stations is smaller than the first predetermined number, transmitting an error-indicating report to said controlling node.

40.   (Original) The locating method of claim 27, wherein said location request message contains a requested waiting time, further comprising the steps of:

a)   determining, at said mobile terminal, whether OTDOA positioning method is satisfactory for the requested accuracy;

b)   if the OTDOA positioning method is satisfactory for the requested accuracy, compare response time of the OTDOA positioning method to the requested waiting time of said location request message;

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c)   if the response time of the OTDOA positioning method is equal to or smaller than the requested waiting time, selecting the OTDOA positioning method;

d)   if the the OTDOA positioning method is not satisfactory for the requested accuracy or the response time of said OTDOA positioning method is greater than said requested waiting time, comparing response time of A-GPS positioning method to the requested waiting time of said location request message; and

e)   if the response time of the A-GPS positioning method is equal to or smaller than the requested waiting time, selecting the A-GPS positioning method.

41.   (Original) The locating method of claim 40, further comprising the steps of:

f)   comparing the response time of the OTDOA positioning method to the response time of the A-GPS positioning method if the response time of the A-GPS positioning method is greater than the requested waiting time, and

g)   if the response time of the OTDOA positioning method is greater than the response time of the A-GPS positioning method, selecting the OTDOA positioning method.

42.   (Original) The locating method of claim 27, wherein said mobile terminal includes a table for mapping a plurality of moving speeds to usable positioning methods, further comprising the steps of:

detecting, at said mobile terminal, a moving speed of the mobile terminal;

making a search through said table for detecting positioning methods corresponding to the detected moving speed; and

selecting one of the detected positioning methods.

43.   (Original) The locating method of claim 27, further comprising the steps of:

detecting, at said mobile terminal, a moving speed of said mobile terminal;

estimating a plurality of distances travelled by the mobile terminal from the detected moving speed and respective response times of said positioning methods;

comparing said estimated distances to the requested distance represented by said accuracy; and

selecting one of said estimated distances which are equal to or smaller than the requested distance and select one of said positioning methods which corresponds to the selected distance.

44.   (Original) The locating method of claim 43, further comprising the steps of:

comparing, for each of said positioning methods, the estimated distance to said requested distance if none of said estimated distances is equal to or smaller than the requested distance;

selecting greater of the estimated distance and the requested distance as a new value of accuracy of the positioning method; and

selecting one of said positioning methods whose new value of accuracy is highest of all of the positioning methods.

45.   (Original) The locating method of claim 38, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, further comprising the steps of:

before performing step (a), making a search through the memory for detecting records which are newer than a specified age;

selecting a most recent record from said detected records as location information of the mobile terminal; and

if none of said past records is newer than the specified age, proceeding to step (a).

46.   (Original) The locating method of claim 39, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, further comprising the steps of:

before performing step (a), making a search through the memory for detecting records which are newer than a specified age;

selecting a most recent record from said detected records as location information of the mobile terminal; and

if none of said past records is newer than the specified age, proceeding to step (a).

47.　(Original) The locating method of claim 40, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, further comprising the steps of:

before performing step (a), making a search through the memory for detecting records which are newer than a specified age;

selecting a most recent record from said detected records as location information of the mobile terminal; and

if none of said past records is newer than the specified age, proceeding to step (a).

48.　(Original) The locating method of claim 41, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, further comprising the steps of:

before performing step (a), making a search through the memory for detecting records which are newer than a specified age;

selecting a most recent record from said detected records as location information of the mobile terminal; and

if none of said past records is newer than the specified age, proceeding to step (a).

49.　(Original) The locating method of claim 42, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, further comprising the steps of:

before performing step (a), making a search through the memory for detecting records which are newer than a specified age;

selecting a most recent record from said detected records as location information of the mobile terminal; and

if none of said past records is newer than the specified age, proceeding to step (a).

50.　(Original) The locating method of claim 43, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, further comprising the steps of:

before performing step (a), making a search through the memory for detecting records which are newer than a specified age;

selecting a most recent record from said detected records as location information of the mobile terminal; and

if none of said past records is newer than the specified age, proceeding to step (a).

51.   (Original) The locating method of claim 44, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, further comprising the steps of:

before performing step (a), making a search through the memory for detecting records which are newer than a specified age;

selecting a most recent record from said detected records as location information of the mobile terminal; and

if none of said past records is newer than the specified age, proceeding to step (a).

52.   (Original) A mobile terminal for a cellular communication network, comprising:

control means for (a) transmitting capability information to said network, indicating positioning methods supported by the mobile terminal and selectability of the positioning methods, (b) receiving a first control message from said network indicating that the mobile terminal is responsible for selecting positioning methods and containing accuracy of location information of the mobile terminal requested by a client terminal, (c) selecting one of said positioning methods if the requested accuracy is satisfied by at least one of said positioning methods, (d) receiving a second control message from said network specifying a positioning method, and (e) selecting the positioning method specified in the second control message; and

a plurality of location processors of different positioning methods, one of said location processors whose method is selected by the control means producing measurement data.

53.   (Original) The mobile terminal of claim 52, wherein said control means is arranged to acquire assistance data from said network and use the assistance data to produce said measurement data.

54.   (Original) The mobile terminal of claim 53, wherein said assistance data is one of mobile-assisted OTDOA assistance data, mobile-based OTDOA assistance data, mobile-based A-GPS assistance data, and mobile-assisted A-GPS assistance data.

55.   (Original) The mobile terminal of claim 52, wherein said control means is arranged to calculate said measurement data to produce location information of the mobile terminal and transmit the location information to said network.

56.   (Original) The mobile terminal of claim 52, wherein said control means is arranged to find an available positioning method if said measurement data is not successfully obtained and operate one of the location processors corresponding to the available positioning method.

57.   (Original) The mobile terminal of claim 52, wherein said control means is arranged to:

determine if OTDOA positioning method is satisfactory for the requested accuracy,

if the OTDOA positioning method is satisfactory for the requested accuracy, compare a count number of base stations observable from the mobile terminal to a first predetermined number,

if said count number is greater than said first predetermined number, select said OTDOA positioning method,

if said count number is smaller than said predetermined number, compare a count number of GPS satellites observable from said mobile terminal to a second predetermined number, and

if the count number of said GPS satellites is greater than the second predetermined number, select A-GPS positioning method.

58.   (Original) The mobile terminal of claim 52, wherein said control means is arranged to:

compare the count number of observable GPS satellites to said second predetermined number if the OTDOA positioning method is not satisfactory for the requested accuracy,

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if the count number of said GPS satellites is greater than the second predetermined number, select A-GPS positioning method,

if the count number of said GPS satellites is smaller than the second predetermined number, compare the count number of said observable base stations to said first predetermined number,

if said count number of said observable base stations is greater than the first predetermined number, select the OTDOA positioning method, and

if said count number of said observable base stations is smaller than the first predetermined number, transmit an error-indicating report to said controlling node.

59.　　(Original) The mobile terminal of claim 52, wherein said first control message contains a requested waiting time, wherein said control means is arranged to:

determine if OTDOA positioning method is satisfactory for the requested accuracy,

if the OTDOA positioning method is satisfactory for the requested accuracy, compare response time of the OTDOA positioning method to the requested waiting time of said location request message,

if the response time of the OTDOA positioning method is equal to or smaller than the requested waiting time, select the OTDOA positioning method,

if the OTDOA positioning method is not satisfactory for the requested accuracy or the response time of said OTDOA positioning method is greater than said requested waiting time, compare response time of A-GPS positioning method to the requested waiting time of said location request message, and

if the response time of the A-GPS positioning method is equal to or smaller than the requested waiting time, select the A-GPS positioning method.

60.　　(Original) The mobile terminal of claim 59, wherein the control means is arranged to:

compare the response time of the OTDOA positioning method to the response time of the A-GPS positioning method if the response time of the A-GPS positioning method is greater than the requested waiting time, and

if the response time of the OTDOA positioning method is greater than the response time of the A-GPS positioning method, select the OTDOA positioning method.

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61.   (Original) The mobile terminal of claim 52, further comprising a table for mapping a plurality of moving speeds to usable positioning methods, wherein said control means is arranged to:

detect a moving speed of said mobile terminal,

search through said table for detecting positioning methods corresponding to the detected moving speed, and

select one of the detected positioning methods.

62.   (Original) The mobile terminal of claim 52, wherein said control means is arranged to:

detect a moving speed of said mobile terminal,

estimate a plurality of distances travelled by the mobile terminal from the detected moving speed and respective response times of said positioning methods,

compare said estimated distances to the requested distance represented by said accuracy, and

select one of said estimated distances which are equal to or smaller than the requested distance and select one of said positioning methods which corresponds to the selected distance.

63.   (Original) The mobile terminal of claim 62, wherein said control means is further arranged to:

compare, for each of said positioning methods, the estimated distance to said requested distance if none of said estimated distances is equal to or smaller than the requested distance,

select greater of the estimated distance and the requested distance as a new value of accuracy of the positioning method, and

select one of said positioning methods whose new value of accuracy is highest of all of the positioning methods.

64.   (Original) The mobile terminal of claim 57, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

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search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

65. (Original) The mobile terminal of claim 58, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

66. (Original) The mobile terminal of claim 59, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

67. (Original) The mobile terminal of claim 60, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

68. (Original) The mobile terminal of claim 61, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

69.   (Original) The mobile terminal of claim 62, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.

70.   (Original) The mobile terminal of claim 63, wherein said mobile terminal includes a memory for storing past records of location information of the mobile terminal, and is further arranged to:

search through the memory for detecting records which are newer than a specified age, and

select a most recent record from said detected records as location information of the mobile terminal.